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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/609,486

07/01/2003

Eric George de Buda

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02/11/2005

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EXAMINER

NGUYEN, VINCENT Q

ART UNIT

PAPER NUMBER

2858

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/609,486	GEORGE DE BUDA, ERIC	
	Examiner	Art Unit	
	Vincent Q Nguyen	2858	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Amendment 26 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-44 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 21-28, 33-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gris et al. (5,414,400) in view of Karrer et al. (6,624,624).

Regarding claims 21, 33, Gris et al. discloses a plurality of planar insulating substrate elements (Elements of which coils 10 and 20 are mounted on) substantially equidistance from a central cavity (2) for receiving the conductor, said substrate elements being aligned with angularly spaced planes that are oriented in substantially axial and radial directions relative to the axis of said cavity (2), and with at least one surface coil (10, 20) defined on a single surface of each said substrate element, said coils (10, 20) being electrically interconnected such that output voltages of said coils are combined and applied to output terminals of said sensor.

Gris et al. does not disclose at least a plurality of the substrate elements are interconnected with each other with twisted pair wire.

Karrer et al. discloses a system similar to that of Gris et al. and further discloses at least a plurality of the substrate elements are interconnected with each other with twisted pair wire (Karrer et al.'s column 5, lines 51-67) for the purpose of compensating the voltages in the adjacent parts.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the elements are interconnected with each other with twisted pair wire as taught by Karrer et al. into the system of Gris et al. because it is a normal way to compensate voltages in the adjacent parts (Faraday's law).

Regarding claims 22, 34, Gris et al. discloses a surface coil comprises a conductive track on a surface of a substrate (Since coil is conductive, it is conductive track in any surface) (Figure 2-3).

Regarding claims 23, 35, Gris et al. disclose at least one surface coil (20) is provided on an opposite surface of a substrate element (31) (Figure 3).

Regarding 24, 36, Gris et al. does not discloses at least two surface coils on opposite surfaces of a substrate element are connected through a via.

Karrer et al. disclose a system similar to that of Gris et al. and further discloses at least two surface coils on opposite surfaces of a substrate element are connected through a via (Karrer et al.'s column 5, lines 58-60, See also Figures 12a, 12b) for the purpose of interconnecting of coils on the opposite surfaces.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the least two surface coils on opposite surfaces of a substrate element are connected through a via as taught by Karrer et al. into the system of Gris et al. because it is a normal way to interconnect coils in opposite surfaces (Karrer et al.'s column 5, lines 58-60).

Regarding claims 25, 37, 38, Gris et al. does not disclose a surface coil includes a plurality of nested conductive turns.

Karrer et al. disclose a system similar to that of Gris et al. and further discloses a plurality of nested conductive turns (figures 13-15).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a plurality of nested conductive turns as taught by Karrer et al. into the system of Gris et al. because in a coil of multiple turns disposed on small area such as current sensor, the turns must be nested to save the area's surface.

Regarding claims 27, 28, 39, 40, Gris et al. discloses the substrate elements are all spaced at equal angle (Figures 2 and 3) (It is inherent that substrate elements are all spaced at equal angle because the voltage of adjacent parts need to compensate, see also the reason applied to claim 21 above).

3. Claim 29-32, 41-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gris et al. (5,414,400) in view of Karrer et al. (6,624,624), as applied to claim 21 above, and further in view of Fernandes (4,855,671).

Regarding claims 29, 30, 41, 42, Gris et al. or Karrer et al. does not explicitly disclose a housing in which the coils are disposed, the housing being divided into at least two sections, such that said sections may be spread apart, to allow entry of said conductor in to said cavity.

Fernandes discloses a measuring device for monitoring the current in the power line and further discloses a housing (figure 3) in which the coils are disposed, the housing being divided into at least two sections, such that said sections "may be" spread apart, to allow entry of said conductor in to said cavity for the purpose of

enhancing the achievement of through self-contained means within each module for communication between modules (Fernandes's column 2, lines 55-61 and column 6, lines 38-40).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a housing as taught by Fernandes into the system of Gris et al. or Karrer et al. because housing the coils would enhance the portability, the security of the coils to the printed circuit board, and enhance the communication between the modules (Fernandes's column 2, lines 55-61).

Regarding claims 31, 32, 43, 44, pertinence to the discussion of claim 29-30 above, Gris et al. or Karrer et al. does not explicitly disclose a housing in which the coils are disposed.

Fernandes discloses a measuring device for monitoring the current in the power line and further discloses a housing (figure 3) in which the coils are disposed and further discloses the mating surfaces (40) of the two sections are located between substrate so as to provide a separation distance between the mating surfaces and the coil conductor (Figure 3).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a housing as taught by Fernandes into the system of Gris et al. or Karrer et al. because of the same reason as set forth in claim 29.

Response to Arguments

4. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No. 3,626,291 discloses set of adjacent coils form a closed path adapted to be closed about a current-carrying conductor. The voltage output from said coil, which is induced by the closing movement or by changes in the conductor current, is integrated.

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

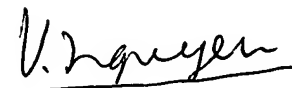
the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Q Nguyen whose telephone number is (571) 272-2234. The examiner can normally be reached on 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



February 8, 2005

Vincent Q. Nguyen
Primary Examiner
Art Unit 2858